

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )

Redevelopment of Spectrum to )  
Encourage Innovation in the )  
Use of New Telecommunications )  
Technologies )

ET Docket No. 92-9

ORIGINAL  
FILE

REPLY COMMENTS OF THE  
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

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## SUMMARY

NTIA continues to support the thrust of the Commission's proposal to accommodate the development of new radio services, based on emerging telecommunications technologies, in the 2 GHz bands, while also ensuring the continued and reliable operation of fixed microwave users presently located in those bands. Based on our review of the parties' comments in this proceeding, we propose a refined framework for implementing the Commission's "negotiated reallocation" proposal in the 2 GHz bands.

Specifically, we propose that for an initial period of at most ten years -- typically sufficient to allow complete amortization of existing 2 GHz microwave equipment -- incumbent users should retain primary status in their existing 2 GHz assignments. Licensees of potential new services would be permitted to negotiate during that time period with existing users for the right to operate on the same spectrum.

Following this initial period, an incumbent fixed user would be required to relocate to higher frequencies when a new service provider obtains approval from the Commission for a plan that details the means for relocating the incumbent. This plan should include, at minimum, pertinent engineering specifications, an offer to pay reasonable costs of relocation, and the time needed for completion of the move.

We believe that this approach, which is similar to proposals in the record of both fixed and mobile spectrum users, provides a workable means of balancing the concerns of the incumbent providers and those wishing to use the 2 GHz bands to provide new technologies.

Further, we reemphasize, as indicated in our initial comments, that we are reviewing the use of federal spectrum in the 2 GHz region to see if some accommodation of displaced users might be feasible. Based on our preliminary analysis, it appears very unlikely that federal spectrum is available to accommodate all, or even most, relocated incumbents. We anticipate, however, that some limited accommodation may be possible, in unusual cases where incumbents' operations could not be moved for, e.g., technical reasons.

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NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

The National Telecommunications and Information Administration (NTIA), as the Executive branch agency principally responsible for the development and presentation of U.S. telecommunications and information policy, and for the management of federal use of the radio frequency spectrum, respectfully replies to the comments filed in response to the Commission's Notice of Proposed Rulemaking (Notice) in the above-captioned proceeding.<sup>1/</sup>

I. INTRODUCTION

The Commission has received extensive comment on its proposal to establish a process that both accommodates the development of new radio services, based on emerging

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<sup>1/</sup> 7 FCC Rcd 1542 (1992).

technologies, in the 2 GHz bands,<sup>2/</sup> and ensures the continued and reliable operation of fixed microwave users presently located in those bands. Not surprisingly, the comments filed by more than 100 parties take diverse positions on issues raised in the Notice.

Parties differ as to whether new service providers should be accommodated in the 2 GHz bands, with many incumbent users opposing such accommodation, and potential new service providers supporting it.<sup>3/</sup> Among parties supporting placement of emerging technologies in the 2 GHz bands, some potential new service providers claim that their service will be able to share spectrum with incumbent users,<sup>4/</sup> while others contend that such sharing is not feasible, at least in the long term.<sup>5/</sup> While many incumbents argue that they should have the ability to remain in place

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2/ In referring to the Commission's proposal regarding the "2 GHz bands," we mean, in particular, the 1.85-1.99, 2.11-2.15 and 2.16-2.20 GHz bands under the jurisdiction of the Commission, which are the subject of its Notice.

3/ See, e.g., Comments of American Gas Association and Association of American Railroads in opposition; Comments of Millicom, Inc. and Personal Communications Network Services of N.Y., Inc. in support.

4/ See, e.g., Comments of Impulse Telecommunications Corp. and American Personal Communications.

5/ See, e.g., Comments of Apple Computer, Inc., Basin Electrical Power Cooperative, and Northern Telecom Inc.

indefinitely rather than moving to higher frequency bands, as the Commission proposes,<sup>6/</sup> others also focus on the best means for the Commission to implement a transition to using the 2 GHz bands for new services.<sup>7/</sup>

NTIA's initial comments agreed with the Commission that it is important for new services such as personal communications services (PCS), wireless PBXs, wireless data networks, and mobile satellite services to have access to 2 GHz spectrum for their operations. NTIA therefore supported the Commission's innovative market-based "negotiated reallocation" proposal, whereby incumbent users could negotiate with new users for access to 2 GHz spectrum in exchange for financial remuneration. However, recognizing the critical services that many incumbent fixed users provide, NTIA also supported some specific proposals for balancing the interests of new and incumbent users in the 2 GHz bands during a transition phase.

In particular, although NTIA supported the thrust of the Commission's proposal to provide a lengthy transition period during which incumbent 2 GHz users would retain their present primary status, we did not favor allowing current users to retain

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6/ See, e.g., Comments of American Gas Association, and Association of American Railroads, El Paso Natural Gas Co., and Nebraska Public Power District.

7/ See, e.g., Comments of Central Maine Power Co. and OCOM Corp.

a right to remain at 2 GHz indefinitely, regardless of the needs of new service users. We indicated, however, that we would be particularly interested in reviewing proposals of the commenters on how best to achieve the accommodation of both new services and existing users in the 2 GHz bands. We also urged the Commission to initiate expeditiously a further rulemaking to develop channelization rules for the higher frequencies to which incumbents could be relocated.

NTIA's comments also addressed the possibility of some federal spectrum being used to accommodate some particular microwave links in the event the Commission could not accommodate them in the higher bands above 2 GHz. Federal government spectrum in the 2 GHz bands is actively used for a large number of services. Indeed, the federal agencies' investment in equipment used in such bands exceeds \$10 billion. However, we stressed that we would review federal spectrum usage, and we would work closely with the Commission to address the valid needs of the private sector 2 GHz users that could not be accommodated in higher bands managed by the Commission, or in their currently assigned frequencies.

We stated that it is unlikely that government spectrum could, on a wholesale basis, accommodate all the private microwave users that may be relocated under the Commission's



proposals. We noted that our spectrum management staff is reviewing the 1710-1850 MHz government band to determine the degree to which some accommodation of current non-government users would be feasible.

After careful examination of the record in this proceeding, our reply comments focus on two issues.

First, we propose a refined framework for implementing "negotiated reallocation" of the 2 GHz bands, so that both incumbents and new service users can operate their important services. NTIA proposes that for an initial period of at most ten years -- typically sufficient to allow complete amortization of existing 2 GHz microwave equipment<sup>8/</sup> -- incumbent users should retain primary status in their existing 2 GHz assignments.<sup>9/</sup> Licensees of potential new services would be permitted to negotiate during that period with users for the right to operate on the same spectrum.

Following this initial period, an incumbent fixed user would be required to relocate to higher frequencies when a new service

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8/ See Notice at 1545.

9/ The incumbent users' existing operations would share co-primary status with the new users. Because these incumbents would be "first in time" in their frequencies, they would have the right to continue to operate without interference from the new services. See also note 10, *infra*.

provider obtains approval from the Commission for a plan that details the means for relocating the incumbent. This plan should include, at minimum, pertinent engineering specifications, an offer to pay reasonable relocation costs, and the time needed for completion of the move. We believe that this approach, which is similar to proposals in the record of both fixed and mobile spectrum users, provides a workable means of balancing the concerns of the incumbent providers and those wishing to use the 2 GHz bands to provide new technologies.

Second, we reemphasize, in response to several parties' comments, that we are reviewing the use of federal spectrum in the 2 GHz region. Based on our preliminary analysis, however, it appears very unlikely that federal spectrum is available to accommodate all or most relocated incumbents, although some of them potentially could be accommodated in special circumstances.

## II. DISCUSSION

### A. NTIA Proposes Adoption of a Two-Stage Plan for Accommodation of Existing and New Service Licensees

In seeking to develop a framework for accommodating new services in the 2 GHz bands, the primary issue with which the commenters and the Commission have been grappling involves the relative rights of incumbent fixed licensees and new service licensees. Potential providers of new services seek assurances that spectrum in the 2 GHz region will be available as they develop their services; incumbent users seek to avoid the costs

and possible changes in their operations associated with relocating to higher frequencies to accommodate new services. The point of conflict for these groups involves the degree to which they have priority rights to particular frequencies.

As stated in our initial comments, NTIA believes that the promise of the new services made possible by the emerging technologies justifies the Commission's efforts to make 2 GHz spectrum available to them. NTIA agrees with the necessity for a period after which the relative rights of incumbent users and new service users would shift, to permit increased use of 2 GHz frequencies by the new users. As noted in our comments, such a period would send a signal to manufacturers and developers of new services that particular spectrum would be available within a certain time frame.

NTIA recognized, however, that some parties are concerned about a framework in which the status of an incumbent automatically shifts from "primary" (or "co-primary") to "secondary."<sup>10/</sup> Under such a proposal, in some geographic areas

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<sup>10/</sup> Although we asked the Commission for clarification of the meaning of "co-primary" status as used in the Notice, NTIA assumes that with such status, incumbent users would be able to operate on an interference-free basis, because incumbents would be located first in time in their assigned frequencies. We are aware, however, that some parties, such as the Utilities Telecommunications Council, have expressed concern about what specific interference criteria and procedures would govern a co-primary sharing arrangement. Comments of Utilities Telecommunications Council at 72.

an existing user might be forced into "secondary" status even though there was no bona fide new service provider in that area. If a new service provider later requested use of the spectrum, no mechanism would exist to compensate the existing user for relocating to a higher band.<sup>11/</sup> NTIA therefore urged the Commission to explore alternative proposals under which current users could be compensated for their relocation costs.<sup>12/</sup>

Study of the record has caused us to refine our recommendations for making 2 GHz spectrum available for new services, primarily by modifying our view of the relative rights the Commission should specify for incumbents and new service providers. Indeed, several commenters suggest alternative mechanisms that both permit incumbent users to remain at present frequencies until a new user's need for those frequencies is established, while ensuring full cost reimbursement to those existing licensees that do, in fact, move. We believe that the proposals of the Utilities Telecommunications Council (UTC), Telocator, and several other parties provide some guidance for improving the Commission's approach by eliminating the possibility that some existing licensees would have to relocate

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<sup>11/</sup> Similar concerns were voiced by a number of commenters. See, e.g., Comments of Telocator at 6.

<sup>12/</sup> Comments of NTIA at 16.

within a set period of time or else not be reimbursed for their relocation costs.<sup>13/</sup>

UTC proposes, in lieu of a "co-primary" transition period, what it calls an "involuntary negotiation program," commencing fifteen years after spectrum is allocated to an emerging technology.<sup>14/</sup> Under this proposal, incumbent fixed users would have "primary" status in the 2 GHz bands. For an initial fifteen year period, new service users would be free to negotiate with incumbents for spectrum.<sup>15/</sup> After that period, incumbents could be required to relocate if, among other things, a new user guarantees payment of the incumbent's costs of relocation and the relocated system can operate at least as reliably as the incumbent's current system. UTC anticipates that this involuntary mechanism would "only be utilized in the rare situation where market forces could not work out an accommodation."<sup>16/</sup>

Telocator supports a plan under which incumbent licensees would have the right to operate, apparently on a primary basis, until a new service licensee demonstrates that technically suitable alternative facilities exist and agrees to compensate

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<sup>13/</sup> Comments of UTC at 75.

<sup>14/</sup> Id. at 78.

<sup>15/</sup> Id. at 79.

<sup>16/</sup> Id. UTC would also immediately apply the "involuntary relocation" approach to new microwave systems licensed in the 2 GHz frequencies. Id.

the incumbent licensee for its relocation costs.<sup>17/</sup> Telocator's approach is similar to that of UTC, although it lacks the specific initial period proposed by UTC in which negotiated reallocation could occur.

In addition, American Personal Communications proposes that incumbents only be required to vacate the 2 GHz bands if asked to do so by a new service licensee, reliable replacement frequencies are available, and the new service licensee bears the full cost of relocation.<sup>18/</sup> Telephone and Data Systems and Southwestern Bell suggest that existing licensees remain co-primary until they voluntarily agree to relinquish their rights to the frequencies they occupy, or until there is a bona fide request for spectrum.<sup>19/</sup>

After considering the strongest points of these and other proposals in the record, NTIA believes that the Commission should permit incumbent users to retain their primary status in using 2

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<sup>17/</sup> Comments of Telocator at 6.

<sup>18/</sup> Comments of APC at 5. Other commenters also propose that the new service providers bear the responsibility of ensuring that current licensees displaced by their operations be reimbursed for their costs of relocation. See, e.g., Comments of Pacific Telesis Group at 14.

<sup>19/</sup> Comments of Telephone and Data Systems, Inc. at 4, and Southwestern Bell Corp. at 19-20.

GHz spectrum for an initial period of at most ten years. During this period, incumbent licensees would be able to negotiate with new service providers over the terms of access to 2 GHz spectrum, including financial compensation. The ten-year period matches both the typical period needed to amortize existing microwave equipment<sup>20/</sup> and the maximum licensing period for domestic fixed public radio services.<sup>21/</sup>

Following this initial period, incumbent licensees would retain their primary status, except that they would be required to relocate or operate on a secondary basis if a new service licensee gives notice and submits a bona fide request to the Commission for use of the spectrum. The request should, at a minimum, include an engineering plan for relocation of the current user to another frequency on which it can operate reliably, an offer to reimburse the current user for its relocation costs, and the time in which the relocation should be

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<sup>20/</sup> See Notice at 1545.

<sup>21/</sup> Indeed, ten years is the longest time period that the Commission should consider for an initial period under this proposal. A shorter period could be justified because, as noted in our initial comments, after the end of the period, an incumbent provider would move only if there is an actual licensed provider prepared to offer a new service and to pay all relocation costs of the incumbent user. Comments of NTIA at 16, n. 23.

completed.<sup>22/</sup> This two-step approach would prevent unnecessary relocation of existing users and ensure that they receive full compensation if a new service develops that needs the frequencies they use.<sup>23/</sup>

NTIA recommends that the new service licensee file its request with the Commission to obtain its approval, after having met and worked with the affected incumbents to attempt to reach prior agreement on the terms of the request. Although this

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22/ The Commission could also consider including other requirements. For example, commenters advocate that the request should include undertakings to satisfy any zoning or environmental approaches to implement the plan. See, e.g., Comments of Telocator at 7.

UTC also proposed a requirement that if the new facilities acquired by the existing microwave licensee prove to be unsatisfactory, the user could be relocated back to its original facilities. Comments of UTC at 78. NTIA would oppose such a requirement, because it would introduce substantial uncertainty into planning for new service operations. In extreme cases, this could affect the ability of new service users to obtain financing for their activities. Instead, the Commission could permit compensation to the incumbent to include an estimate of reasonable costs of initially adjusting the new system so that it functions reliably.

23/ Although the relocation approach discussed above focuses on those new services that will be licensed by the Commission, we recognize that the Commission is considering proposals for innovative, new services that would operate on an unlicensed basis. See, e.g., Comments of Apple Computer, Inc. at 3. The proponents of such services acknowledge, however, that incumbents should be reimbursed for what they term "reasonable dislocation expenses," Comments of Apple Computer, Inc. at 5, and have proposed some specific mechanisms for that purpose. Id. at 8, n. 10, citing Statement of Apple Computer, Inc., Before House Subcommittee on Telecommunications and Finance, Hearing on H.R. 531, the Emerging Telecommunications Technology Act of 1991 (Mar. 21, 1991).



approach relies on administrative proceedings that could cause some delay, we believe that, as UTC states regarding its proposal, the availability of free-market negotiation for several years prior to the mandatory relocation process could provide the opportunity and incentive for incumbent and new service providers to work together to avoid the complexities and costs entailed in such a process. In recommending this approach, NTIA believes that it combines the most desirable characteristics of the Commission's original "transition period" proposal with a more refined recognition of the rights of incumbent users to continue operation in frequencies that are not yet needed by new service users.

B. NTIA Reaffirms Its Intent to Work With the Commission and the Industry to Determine Whether Some Federal Spectrum Can Be Made Available

In the Notice, the Commission requested comment on the availability or suitability of federal spectrum near 2 GHz for relocation of existing operations in the 2 GHz bands. Several parties urged the Commission to consider using federal 2 GHz spectrum to carry out its proposal. Many commenters also urged that federal spectrum be considered either for the implementation of new technologies, or for relocating existing users that would be moved under the Commission's plan.<sup>24/</sup>

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<sup>24/</sup> See, e.g., Comments of American Petroleum Institute, Citizens Utilities Company of California, Harris Corp., Institute of Electrical and Electronics Engineers, Inc. - United States Activities, and UTC.

In our initial comments, we noted that, as the manager of federal spectrum use, NTIA is the competent authority to determine the appropriate use of the federal spectrum. We stated that, while we are reviewing federal usage in the 2 GHz bands, it is unlikely that sufficient federal spectrum would be available in those bands to accommodate private sector fixed users on a wholesale basis. However, we stressed that we would work closely with the Commission and with the federal agencies that use the bands in question to determine whether some accommodation is possible for fixed microwave users that cannot operate reliably at higher frequency bands.<sup>25/</sup> Those efforts are ongoing.

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<sup>25/</sup> Comments of NTIA at 18, 20. There is some discussion in the record as to whether incumbents can operate with sufficient reliability in the higher bands. Studies by COMSEARCH indicate "that in all markets, practically every path can be relocated [from the 1.85-1.99 GHz band] to the higher [6.525-6.875 GHz] band with similar reliability." Comments of COMSEARCH at 3. Motorola also supported the Commission's conclusion that fixed microwave operations at higher bands will be reliable. Comments of Motorola Inc. at 13-16.

In contrast, Harris Corp. provided some data purporting to show that "the 2 GHz band provides more reliable propagation than does the 6 GHz band on long and difficult paths []." Comments of Harris Corp. at 3 and Exhibit 1. However, the data provided by Harris Corp. is limited, in that it was based on a single example of a path in a low-lying coastal area. Commission policies in this docket should not be based on such a limited case. Moreover, COMSEARCH conducted a specific detailed study of the fixed microwave operations in Houston, also a low-lying coastal area, indicating that only 4 of the 107 microwave paths in the 1.85-1.99 GHz band could not be relocated to the 6.7 GHz band. Comments of COMSEARCH at 3. NTIA has already suggested that if there are cases, potentially including the Harris Corp. example, where incumbent operations cannot be accommodated by the Commission in their present frequencies or in higher bands, NTIA may be able to accommodate some such operations. Comments of NTIA at 20-21.

Although some parties contend that federal spectrum is underutilized or could be readily made available in response to the Commission's proposal, this is not the case. For example, some commenters argue that because the 1710-1850 MHz government band is already predominantly used by fixed microwave users, accommodation of similar private sector users is also feasible.<sup>26/</sup>

As we stated in our initial comments, these government frequencies accommodate a wide variety of uses, including mobile and fixed satellite services, as well as fixed microwave services, for purposes of national defense, power distribution, resource management, safety, law enforcement, control of military area-wide command and control systems.<sup>27/</sup> As we also previously noted, the number of transmitters in the federal band is substantially greater than in the adjacent non-government band of

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<sup>26/</sup> See, e.g., Comments of CYLINK Corp. and Rose Communications Inc. Similarly, Harris Corp. claimed that although the government makes substantial use of the band, sharing the government frequencies with private microwave and common carrier users would be feasible. Comments of Harris Corp. at 8. However, COMSEARCH discussed the difficulties of frequency coordination if the 1710-1850 MHz band were made available as a shared band. Comments of COMSEARCH at 10-11.

<sup>27/</sup> Comments of NTIA at 19.

the same size.<sup>28/</sup> Moreover, classified uses in the government 2 GHz bands are substantial, but we have not included them in calculating government usage of the frequencies. Accordingly, the potential availability of federal 2 GHz spectrum is quite limited.<sup>29/</sup>

Finally, GTE, commenting on NTIA's draft spectrum resource assessment (SRA), entitled Federal Spectrum Usage of the 1710-1850 and 2200-2290 MHz Bands,<sup>30/</sup> claims that a discrepancy exists between the Commission's estimated cost of \$125,000 for replacing a fixed microwave system and NTIA's estimated replacement cost in

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<sup>28/</sup> Letter from Thomas J. Sugrue, Acting Assistant Secretary, NTIA, to Alfred C. Sikes, Chairman, FCC (May 4, 1992), in this docket. Motorola supports UTC's recommendation that the 1710-1850 MHz government band be opened to accommodate incumbent users at 1850-1990 MHz. Comments of Motorola at 8. However, Motorola's support of UTC's position is based on the incorrect assumption that the government band is less congested than the adjacent private microwave band. Similarly, the statement of Harris Corp. that "87 percent of the total frequencies authorized in the 1710-1850 MHz band are for fixed systems," Comments of Harris Corp. at 8, is not germane, because, as noted in NTIA's May 4th letter, less than 5,000 transmitters out of a total of 12,000 transmitters in the band are for fixed microwave.

<sup>29/</sup> Similarly, the Commission should not rely on the possibility that some spectrum could ultimately be reallocated from federal to non-federal use through legislation now pending in the Congress. See, e.g., Comments of the Association of American Railroads at 20-21 (referring to the possibility that 30 MHz of spectrum may be so reallocated pursuant to pending legislation).

<sup>30/</sup> "Federal Spectrum Usage of the 1710-1850 and 2200-2290 MHz Bands," E. Cerezo, Ed., NTIA TR 92-285 (Mar. 25, 1992) (stamped "DRAFT"). The draft SRA was included in the record of this proceeding. FCC Public Notice, Mimeo No. 22951, May 4, 1992.

the draft SRA.<sup>31/</sup> In fact, the estimate for replacement cost prepared by the staff of NTIA's Office of Spectrum Management and used in the draft SRA is approximately \$112,000, which is quite close to the Commission's estimate.<sup>32/</sup> The \$250,000 figure that GTE cited from the draft SRA<sup>33/</sup> was for a new fixed station, which would typically include additional costs that would not necessarily arise if a fixed user relocates to a different frequency.

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31/ Comments of GTE Service Corp. at 18.

32/ This estimate is reflected on line 2.A.(8) of Table 5-1 (page 2 of 3) of the draft SRA and can be derived by dividing \$114 million by the number of units (1015). This data reflects NTIA's own estimate of replacement cost, in contrast to estimates in the preceding lines 2.A.(1) through (7), which were provided by other government agencies. GTE also refers to a replacement cost estimate in the draft SRA as high as \$1.5 million for a system. Comments of GTE at 18. This estimate apparently refers to data found on line (5) of Table 5-1 (page 2 of 3), listing replacement cost estimate for Federal Aviation Administration (FAA) operations. It is our understanding, however, that the estimate, which was provided by the FAA, was obtained by taking the total cost of its communication system (not solely the fixed microwave portion) and dividing that by the number of fixed links. Accordingly, this figure should not be relied upon as a basis for determining estimated relocation costs for fixed microwave users.

33/ Comments of GTE at 18. GTE based its figure on note b to Table 5-1 at 5-5 in the draft SRA.

III. CONCLUSION

NTIA urges that the Commission adopt the refinements to its proposal recommended in the foregoing reply comments.

Respectfully submitted,

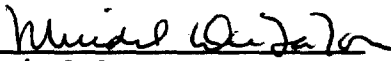
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I, Mindel De La Torre, do hereby certify that I have this 8th day of July, 1992, mailed by first class United States mail, postage prepaid, copies of the Reply Comments to the following:

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